University of Alberta
Printing Department

THE UNIVERSITY OF ALBERTA

JUSTIFICATION, DISSONANCE, AND RECEPTIVITY TO DISCREPANT INFORMATION

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

EDMONTON, ALBERTA

FEBRUARY, 1967

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Justification, Dissonance, and Receptivity to Discrepant Information", submitted by Mark Lawson Sandilands in partial fulfilment of the requirements for the degree of Master of Arts.

Abstract

Although it is a widely accepted principle of social psychology, the proposition that persons tend to avoid information which is discrepant with their own attitudes has received little experimental support. In this study it was proposed that the justification for a behavior is a determinant of receptivity to information discrepant with that behavior. Receptivity was measured in terms of preference rank given a magazine article. It was also expected that there would be an interaction between justification and commitment to exposure to discrepant information as evidenced in the magazine article preference ranks and in a measure of change in attitude toward the behavior. None of the expectations were supported. However an unexpected interaction effect on the attitude change measure occurred and a tentative interpretation of it was presented. Possible reasons for the lack of results were discussed in terms of difficulty of measuring justification. Suggestions for further tests of the hypotheses were made.

Acknowledgements

I am particularly grateful to Dr. B.G. Rule, without whose support, encouragement, and advice this thesis would not have been completed. Her supervision has made this an invaluable learning experience for me.

I also wish to thank Dr. E. Miklos, Dr. P. Swartz and Dr. T.M. Nelson for their helpful comments and suggestions.

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Introduction

It is commonly accepted that man's social life is dependent, in part, upon the enduring nature of his attitudes. Nevertheless, it is sometimes desirable to change or at least modify attitudes. Since one of the three components of an attitude is a cognitive one (Krech, Crutchfield and Ballachey, 1962, p. 139; Allport, 1935) it seems reasonable that it would be possible to change an attitude by presenting to the individual information relevant to this cognitive component (Hovland, 1954). However, as has been recently noted (Freedman and Sears, 1965a), the changing of an attitude is not quite as simple as this; presentation of discrepant information often does not serve to change the corresponding attitude.

Two general types of ideas have been offered to explain the lack of attitude change caused by presenting discrepant information. One of these explanations proposes a wide variety of mechanisms which an individual uses in resisting a discrepant message which he reads or hears. For example the message's impact is weakened by previous learning of counterarguments (McGuire and Papageorgis, 1961), by derogation of the communicator (Hovland, Harvey, and Sherif, 1957), or by forewarnings about its content (Freedman and Sears, 1965b).

A second explanation for the ineffectiveness of presenting discrepant information concerns voluntary exposure to this information. If an individual has a choice, he does

not tend to voluntarily expose himself to information which is discrepant with his own attitude or opinion. This proposition along with its companion proposition, that people tend to seek out information which supports their opinions (Volkswagen owners are apt to be the most avid Volkswagen advertisement readers), is one of the most widely accepted principles of mass communication in social psychology. Selective exposure is a central proposition to Dissonance theory (Festinger, 1957; Brehm and Cohen, 1962); it is important to theories about mass communications (Klapper, 1949, 1960); to some writers it is a basic principle of human behavior (Berelson and Steiner, 1964), and many other writers have assumed it to be clearly demonstrated (Cooper and Jahoda, 1947; Hovland, 1949; Hyman and Sheatsley, 1947; Janis, 1957; Lazarsfeld, Berelson, and Gaudet, 1944; Lipset, Lazarsfeld, Barton, and Linz, 1954; Maccoby, Romney, Adams and Maccoby, 1959; McGuire and Papageorgis, 1961). However, a recent review of the literature on selective exposure (Freedman and Sears, 1965a) does not substantiate this assumption:

> Clearly, experimental evidence does not demonstrate that there is a general psychological tendency to avoid nonsupportive and to seek out supportive information. Equally clearly, the research does indicate that individuals' preferences must depend on the particular circumstances. Under some conditions, there is a strong preference one way; under others, the preference is reversed. What is

needed is a specification of the factors which affect these preferences (p.69).

Freedman and Sears (1965a) have suggested several individual difference variables which have powerful effects on exposure preferences. Education and socioeconomic status have been shown to be powerful predictors of voluntary exposure to informational and public affairs presentations in the mass media. Utility of information, the extent to which information will serve a useful, practical purpose, is an often ignored but important variable in determining exposure to information whether it is discrepant or not. In fact utility of information may be an explanation for some seemingly equivocal experiments (Adams, 1961; Mills, Aronson, and Robinson, 1959; and Rosen, 1961).

Adams (1961) asked mothers of young children whether they believed in hereditary or environmental theories of child development, and then offered them opportunity to hear one of two speeches upholding these alternatives. In this sample 74.5% selected the speech supporting their own opinions. While this represented a highly significant preference for supportive information, one important feature of the setting confused the picture. All but six of the one hundred subjects tested believed a child's behavior to be "mostly learned" rather than "mostly inborn". Hence the apparent preference for supportive information actually represented a preference for the "environmental" talk, which may have been more useful to mothers who have little control over the hereditary endowment of their children.

Mills et al. (1959), in an experiment which Rosen (1961) replicated, allowed introductory psychology students to make a choice between either multiple choice or essay type examinations for an upcoming test. He found that after the choice was made, subjects preferred to read research articles supporting their choice of examination. In other words they preferred supportive information. This study was equivocal in that it is debatable that the articles could be considered supportive or non-supportive of the choices. It is possible that the students preferred the supportive articles because they hoped to get an indication of how to study for the type of examination chosen.

An entirely different approach to the problem of selective exposure lies in Festinger's theory of cognitive dissonance (Festinger, 1957) and modifications of it (Brehm and Cohen, 1962). Cognitive dissonance according to Festinger (1957), is a psychological tension having motivational characteristics. This theory deals with the ways in which cognitive dissonance can be both aroused and reduced. The units of the theory are cognitive elements or cognitions which are items of information about oneself or one's environment. Examples of cognitions are such things as knowledge of one's feelings or other's feelings, one's behavior, and one's intentions.

The theory of cognitive dissonance is classified as a balance theory because it assumes the individual is motivated to maintain a balance or consonance between two cognitive

elements. Two elements are in a consonant relationship if one implies the other. That is, having a given cognition, A leads to having another given cognition, B. Two cognitive elements are in a dissonant relationship if one follows from the obverse of the other. Thus, if A implies B, then holding A and the obverse of B is dissonant. A person experiences dissonance, a motivational tension, when he has cognitions among which there are one or more dissonant relationships. For example, if a person plans to buy a new car and is considering either a domestic four door sedan or an imported two door coach, the good and bad features of both are considered. The domestic car has more room, more power and is more comfortable; the import is more economical to purchase, run and maintain, and it is possibly more fun to drive. If the person chooses the import, his choice is the obverse of his cognitions about the good features of domestic cars and the bad features of foreign cars. Therefore his choice arouses cognitive dissonance which he is motivated to reduce.

There are several ways in which the dissonance can be reduced: (1) The individual can change his cognitions (attitudes) regarding the desirable and undesirable characteristics of domestic and foreign cars, amplifying the good and attenuating the bad regarding the import and vice versa regarding the domestic car. (2) The individual can change his behavior and buy the domestic car or even buy both cars, which is an unrealistic although more complete solution. (3) The individual can seek out information supporting his choice

(pro-import, anti-domestic information) and avoid exposing himself to information contradicting his choice.

Brehm and Cohen (1962) report that many of the major derivations of the theory have been tested and supported. Some of the supported derivations concerning the arousal of dissonance in a "free choice" situation are that: (1) A choice between two attractive alternatives creates dissonance; (2) Dissonance arising from a choice is proportional to the importance of the choice; (3) Dissonance arising from a choice is proportional to the attractiveness of the rejected alternative; and (4) Dissonance arising from a choice is proportional to the qualitative dissimilarity of the choice alternatives. Supported derivations concerning the arousal of dissonance in a "forced-compliance" situation include: (1) Dissonance from commitment to comply decreases as rewards, incentives, or justifications for compliance increase; (2) Dissonance from commitment to comply decreases as coercive forces to produce compliance increase. In regard to studies of "exposure", the following additional derivations have been supported: (1) The amount of dissonance consequent to exposure to discrepant information is a direct function of the importance of the issue; (2) Dissonance in the communicatee is a direct function of the difficulty or effort involved in exposure to the discrepant information.

Dissonance affects a variety of behaviors: (1) opinions on various issues, (2) evaluations of persons, groups, and activities, (3) salience of information, (4) recall of information, (5) perceptual distortion, (6) change in behavioral

commitment, (7) motivation, (8) acceptance of information, and (9) seeking of and voluntary exposure to information (Brehm and Cohen, 1962, pp. 308-309).

The latter two points were postulated by Festinger (1957) as basic assumptions of his theory. As originally stated by Festinger the hypotheses are:

> If a source of information is viewed as potentially decreasing dissonance or providing new elements consonant with (their) behavior, persons should expose themselves to this source. If the source of information is viewed as potentially increasing dissonance, there should be active avoidance of exposure to the information (p. 163).

The second derivation concerning avoidance of dissonance increasing information was supported in a laboratory experiment by Festinger (1957, pp. 162-176) and replicated by Cohen, Brehm and Latané (1959). In this experiment, college students each played a simple card game with the experimenter for variable amounts of money. The subject was asked to choose between playing on one side with a low but simple pay-off or on the other side with a variable and complicated pay-off scheme. He was told that he could change sides once during the game for a price. After the subject had played 12 of the expected 30 hands of the card game, he was given a graph to study which, he was told, would help him to decide which side was better. Two different graphs were used so that no matter which side the subject had chosen, he would see that he was on the loser's side if he

interpreted the graph correctly. According to Festinger's (1957) hypothesis, if information is perceived as potentially increasing dissonance there will be active avoidance of it. Therefore, if continuing to play the game on the side originally chosen is dissonant with losing, then in order to prevent any increase in his dissonance a subject who is losing would actively avoid information which indicates that he is on the losing side. The results of the studies by Festinger (1957) and Cohen, Brehm, and Latané (1959) support the hypothesis. On the other hand, Chapanis and Chapanis (1964) criticized the interpretation of the results of this experiment. They suggested that Festinger's interpretations are unnecessarily elaborate and unjustified. They also proposed that the gambling experiment was not so much an experiment on the dissonance reducing effects of information in post decision processes, as it was an experiment on information seeking in predecision processes. That is, subjects looked at the graph not to reduce dissonance, but to find information to help them to decide whether they should change sides.

Brock (1965) has also criticized the gambling experiment as support for the avoidance postulate. He stated that the situation is infrequent in real life and that the choice alternatives were novel. Therefore the choice alternatives were not capable of support to the same degree as the alternatives involved in studies showing no avoidance of dissonance increasing information.

The studies showing no avoidance of dissonance increasing information deal with information concerning automobile purchase (Ehrlich, Guttmann, Schonbach and Mills, 1957), theories of child development (Adams, 1961), smoking as a health hazard (Brock, 1965; and Feather, 1962, 1963) course examinations (Mills et al. 1959; and Rosen, 1961) partners in a war game (Jecker, 1964) and television teaching (Mills and Ross, 1964). Several of these studies (Brock, 1965; Feather, 1962; and Rosen, 1961) have indicated that subjects in some situations prefer non-supportive or dissonance increasing information. Feather (1962) divided smokers and non-smokers into two groups, those who believed there was convincing evidence linking cigarette smoking with lung cancer, and those who did not believe the evidence to be convincing. In each group smokers preferred an article contradicting their beliefs while non-smokers showed no particular exposure preferences, regardless of their position.

In an attempt to clarify the issue, Brock (1965) replicated Feather's (1962, 1963) method together with manipulation of commitment to exposure. He reasoned that failure to find selective exposure was due to absence of or doubt about commitment to exposure on the subjects' part. Commitment is present when a subject's response implies a commitment to subsequent behavior or action, that is, when he has decided to do or not do a certain thing, when he has chosen one (or more) alternatives, when he actively engages in a given behavior or has engaged in a given behavior. If, for example, a person is watching a movie in a theatre, or

if he has only decided to go to a movie, we may say that he is committed (albeit, more strongly in the former than in the latter) to the behavior of watching a movie (Brehm and Cohen, 1962, p. 8).

Brock (1965) requested that smokers and non-smokers rank order magazine article titles under two conditions which led them to believe that they either would or would not have to read articles which they had ranked highly. When subjects believed they would subsequently read an article which was one of their highest preferences, the smokers were much more interested in reading an article denying the relationship between cancer and smoking than were the non-smokers. However, under the same conditions, that is, when they believed they would read an article, another group of smokers was also more interested in reading an article asserting the relationship between smoking and cancer than was another group of non-smokers. In other words, the data failed to show the theoretically postulated avoidance of discrepant information.

If the avoidance postulate were not central to the theory of cognitive dissonance, it could be easily discarded. However, the avoidance of "situations and information which would likely increase dissonance" was one of Festinger's (1957, p.3) two basic hypotheses. Clearly a revision of the avoidance postulate is indicated.

Brock (1965) has suggested that individuals who have had little prior experience with information relevant to a

behavior are unable to adequately justify their behavior and are likely to avoid situations and information which would be likely to increase their dissonance. But individuals who have had ample prior experience with information relevant to a behavior are able to justify their behavior and are therefore able to easily reduce their dissonance.

This notion is similar to that proposed by Festinger (1964) concerning confidence in opinions and selectivity. He has hypothesized that an individual's choice between avoiding or seeking out opposing information is dependent on how confident he is that his opinion is correct. If the subject is highly confident that he is right, he may seek out the non-supportive information and try to refute it. Although this hypothesis was confirmed by Canon (1964), Freedman (1965) failed to confirm it in a replication of Canon's experiment. Several other studies (Freedman and Sears, 1965a) have provided only negative evidence for this hypothesis.

Since dissonance is a motivational tension, reduction of it may be accompanied by positive affect. To experience the positive affect it may be necessary to first expose oneself to dissonance increasing stimulation, and then reduce the dissonance. This may provide the kinds of motivational satisfactions outlined by White (1959) in his concept of competence. Perhaps exposing oneself to discrepant information immunizes (McGuire and Papageorgis, 1961) one's choice against further contradictions.

In summary then, individuals who have ample information

relevant to a certain behavior might seek out discrepant information in order to experience the gratification accompanying dissonance reduction, and individuals without much relevant information might tend to avoid discrepant information.

The purpose of this study was to demonstrate that the number and importance of cognitions regarding a behavior (that is, justification for a behavior) is a determinant of the willingness to expose oneself to information discrepant with the behavior. Since the receptivity to discrepant information depends on the certainty of exposure to it (Brock, 1965), degree of commitment to exposure was systematically manipulated.

It was expected that individuals who had many and important cognitions relevant to a behavior would be more receptive to information which was discrepant with their behavior than would individuals who had few and/or unimportant cognitions relevant to their behavior. It was also expected that there would be an interaction between degree of commitment to exposure and justification such that individuals with low justification would behave according to Festinger's (1957) hypothesis and avoid discrepant information especially when their level of commitment was high. Individuals with high justification would behave in an opposite manner and seek out dissonance increasing information, as was explained above, especially when commitment was high.

A second dependent variable investigated in this study

was a measure of change in the attitude toward the relevant behavior. This was included because the literature indicates that when an individual is committed to expose himself to information discrepant with his own attitudes, dissonance is aroused. This dissonance often leads to change of attitude in the direction of the communication (Brehm and Cohen, 1962). It has been suggested, however, that the more an individual feels justified in his behavior, the less he will change his attitude, since a person who is highly justified experiences less dissonance (Cohen, 1964, p.88). In this study it was expected that high commitment to exposure and a low level of justification would lead to high cognitive dissonance. It was assumed that the dissonance would be reduced through a change in attitude in the direction of the position indicated by the discrepant communication. However, the combination of high justification and high commitment to exposure was not expected to produce this change.

In summary, it was expected that (1) individuals who had many and important cognitions relevant to a behavior (smoking) would be more receptive to information which was discrepant with their behavior than would individuals who had few and/or unimportant cognitions relevant to their behavior; (2) there would be an interaction between degree of commitment to exposure and justification such that individuals with low justification would be least receptive and individuals with high justification would be most receptive to discrepant information under a high commitment

to exposure; and (3) subjects with low justification would change their attitudes in the direction of the discrepant information more than would subjects with high justification when both were highly committed to exposure.

Method

Design:

There were two dependent variables in a 2 x 2 factorial design: preference ranking of magazine article titles and a measure of attitudes. The independent variables included level of justification and degree of commitment to exposure.

Subjects:

Sixty subjects, fifteen female and forty-five male, were selected from the pool of subjects required to participate in experiments as part of their introductory course in psychology. As was done by Brock (1965) in order to preclude any effects or lack of effects due to being a light smoker, only subjects who smoked ten or more cigarettes per day were used in this study. They were selected on the basis of their responses to a "justification for smoking" questionnaire administered in tutorials by their instructors several weeks prior to the experiment. (The "justification for smoking" questionnaire is described in the materials section). Subjects were assigned to the high and low justification groups according to their scores on this questionnaire. The low scores ranged from 11 to 27 with a mean of 20.53; the high scores ranged from 36 to 56 with a mean of 44.00. After classification into high and low justification groups, subjects were then contacted by telephone (except four who were contacted in the class lectures) and alternately assigned to high and low commitment to exposure conditions. They were

asked to participate in an experiment to be conducted for the caller's thesis; curious ones were told that it would be a simple experiment, a reading survey taking about one half hour. Of the sixty-six subjects contacted, four had completed their experimental requirements and refused to participate, and two were discarded randomly leaving a total of sixty subjects, fifteen in each of the experimental groups.

Materials:

Materials included a questionnaire entitled "Smoking Survey" containing items regarding reasons for smoking. These items were based on those determined in pilot samples and in a search of the literature on smoking. They are presented in Appendix A. Subjects were instructed to decide whether each statement pertained to their reasons for smoking and if so to rate its importance to them on a five point scale of importance. The "justification for smoking" scores were obtained by summing the importance values for the reasons which had been circled "YES". Included in the questionnaire were three other items dealing with the number of cigarettes smoked by the individual in one day, whether he smoked filter tips or plain ends, and requesting an estimate of the probability that he would quit smoking in the next ten years. Respondents who smoked less than ten cigarettes per day were discarded from the sample.

Materials used during experimental procedures were a large stack of magazines (Reader's Digest) consisting of approximately 25 issues. Protruding from each magazine was at least one tab of paper one inch in width which would

supposedly mark the page of an article. Data were obtained on three sheets. The first one was a list of magazine articles including a critical one, "The Smoking Habit - Why we Should Quit", which was fifth on the list. The complete list of magazine article titles can be found in Appendix B. Attached to the front of this sheet was one of two sets of instructions both entitled "University Reading Survey". One set was designed to manipulate high commitment to exposure and the other low commitment to exposure. The instructions for the high exposure manipulation were designed to imply that the subjects would read an article in the experiment. The instructions for the low exposure manipulation did not imply this.

The second data sheet was titled "Opinion Questionnaire" and contained 11 items requesting estimates of probability along with instructions for completing the questionnaire. Each item related to one magazine article title from the previous questionnaire. The critical item was "The chances that you will quit smoking (or start smoking if you are a non-smoker) are about____ in 100". This data sheet can be found in Appendix C.

Subjects were asked to answer two more questions regarding their feelings if they were to read the article entitled "The Smoking Habit - Why We Should Quit". They were asked how much they would enjoy reading the article and how different they thought it would be from their own opinions about smoking (see Appendix D).

Procedure:

Subjects were run in groups ranging in size from three to seven. One subject arrived late and was run individually.

All subjects were treated alike except for two conditions regarding the commitment to exposure manipulation. In the high exposure conditions, subjects were led to expect that they would immediately read an article which was one of their highest preferences. This expectation was reinforced by the instructions on the first sheet handed to them and by the stack of magazines with markers in them. Low exposure subjects were not led to this expectation.

For the low exposure conditions the instructions read: "Titles of several magazine articles appear on the next page. Indicate your preferences among these articles by ranking the titles in their order of interest to you. Write the number '1' next to the title that you would be most interested in reading today, '2' next to the article that would be your second choice, and so on. Write '11' next to the title that you would be least interested in reading today". The instructions for the high exposure conditions were: "You will be asked to read a magazine article about a topic in which you are very interested. The articles are read in this room so that group reading time and reading enjoyment scores can be obtained. Titles of several magazine articles appear on the next page. After indicating your preferences among these articles you will be handed a magazine. The magazine will contain one article which was one of your highest preferences. (All articles are the same standard length). Indicate your preferences among the magazine articles by ranking the titles in their order of interest to you. Write the number '1' next to the title that you are most interested in reading today,

'2' next to the title that is your second choice, and so on. Write the number '11' next to the title that you are least interested in reading today".

After the first set of instructions were read by the experimenter all subjects were treated alike. When the magazine articles had been preference ranked, the experimenter made sure that all of the subjects had written their names on the face sheet and collected the first set of materials. Then the material for the opinion survey was distributed and subjects were asked to write their names on this sheet. The instructions were read by the experimenter and after all subjects had completed the form it was collected. The third sheet was administered in a similar manner. When all data sheets had been collected, the experimenter announced that the experiment was concluded, and explained that it had been concerned with the effect of choice of reading material on opinions. He asked the subjects not to discuss the details of the experiment with their friends and gave them the standard cards signifying that they had participated in an experiment and were entitled to one credit. The experiment took place in two rooms which were across the hall from each other.

The experiment was conducted one to two weeks after the "Smoking Survey" was administered. This delay, along with the facts that there was some dissimilarity between the questions on the survey and the questions in the experiment proper, and that the "Smoking Survey" was administered by persons other than the experimenter, made it unlikely that any subjects suspected the two were related.

Results

The main hypothesis for this experiment was that the degree of justification which an individual has for a behavior determines the willingness of the individual to expose himself to information discrepant with that behavior. Justification was operationally defined as the score an individual obtained on a questionnaire regarding smoking. Willingness to expose oneself to discrepant information was operationally defined as preference rank given to the discrepant article. These preference ranks were the main data for the experiment. The possible range of values was from 1 to 11. The actual range was also from 1 to 11, that is, at least one subject preferred the anti-smoking article over all others, and at least one subject preferred all others to the anti-smoking article. The overall mean of these values was 5.700 and the group means are given in Table I.

Table I

Mean Preference Rank for Experimental Groups

	low exposure	high exposure
low justification	6.133	5.267
high justification	6.533	4.867

Analysis of variance of the preference rankings showed that differences in justification had no significant effect on the preference rankings. However, the commitment to exposure manipulation yielded differences which approached significance. The interaction between justification and exposure was not

significant. A summary of the analysis of variance of the preference rankings is given in Table II.

Table II

Summary of the Analysis of Variance of Preference Rankings

Source of Variance	Sum of Squares	df	Mean Square	F	p
High vs. low justification (A)	0.00	1	0.00	-	-
High vs. low exposure (B)	24.10	1	24.10	3.59	$<.10$
A x B	2.40	1	2.40	<1.0	-
Error	376.10	56	6.72		

Of secondary interest were the attitude change scores. On two separate occasions, subjects were requested to estimate the probability that they would quite smoking in the next ten years by giving a number between 0 (they definitely would not quit) and 100 (they definitely would quit). Intervening between the two probability estimates were the experimental manipulations designed to induce a change in this probability estimate. Change scores were determined for each subject by subtracting the second probability from the first. Thus an increase in probability of quitting smoking would result in a negative change score, and a decrease would result in a positive change score. The overall mean change in probability of quitting smoking was 4.400; group means are given in Table III.

Table III

Mean Attitude Change for Experimental Groups

	low exposure	high exposure
low justification	-3.667	14.000
high justification	12.667	-5.933

Analysis of variance of the change scores revealed that none of the main effects were significant. However, the interaction between justification and exposure was significant at the .005 level. A summary of the analysis of variance of attitude change scores is given in Table IV.

Table IV

Summary of Analysis of Variance of Attitude Change

Source of Variance	Sum of Squares	df	Mean Square	F	p
High vs. low justification (A)	48.60	1	48.60	-	-
High vs. low exposure (B)	3.26	1	3.26	-	-
A x B	4932.27	1	4932.27	17.65	<.005
Error	15649.60	56	279.45		

Discussion

The hypotheses advanced as a revision of Festinger's avoidance postulate were not supported by the data. That is, there was no difference in avoidance of the discrepant article between the two levels of justification. Inspection of the means for the preference rankings revealed that while the high justification, high exposure group tended to avoid the discrepant article least, none of the other means were in accord with the expectations.

There was however, a tendency for subjects in the high commitment to exposure conditions to show a greater preference for the discrepant article. This is similar to the results of Brock (1965), who also obtained less avoidance of discrepant information under similar high exposure conditions than under low exposure conditions. Also, the high justification, high exposure subjects avoided the discrepant article least. As this was expected from the major hypotheses, the trend of the data supports to some degree, the revision of the avoidance postulate.

The fact that differences in justification for a behavior did not significantly influence avoidance of discrepant information may have been due to inadequate measurement of justification. Several weeks prior to the experiment, all subjects had been given a questionnaire listing reasons for smoking. They were asked to indicate their reasons for smoking and the importance of these reasons. Perhaps there was a tendency for some persons to agree with the statements

independently of their relevance to the persons' behavior. This response set, called acquiescence, would produce spuriously high scores. Or perhaps persons who obtained high scores were only attempting to reduce dissonance produced by thinking about their smoking behavior.

A related problem may lie in the definition of the word "justification". For purposes of this study, and in accord with Brock's (1965) definition, justification referred to, "the number and importance of prior cognitions consonant with the (behavior)". It may not be that prior cognitions, even important ones, are sufficient for the feeling of justification. Certain types of cognitions may be necessary: for example, a person may have to be aware of arguments against smoking as well as arguments for smoking in order to be confident that he can read an anti-smoking article without feeling threatened.

Smoking may have been an inadequate issue for investigation of the hypotheses advanced as a revision of the avoidance postulate. The average smoker is literally bombarded with reasons why he should quit smoking. Therefore it is quite possible that the explanations for seeking out discrepant information would not hold here. Most individuals would be satiated with respect to any positive affect obtained by dissonance reduction. Also, most individuals would have no need for immunization (McGuire and Papageorgis, 1961), having "received all of their shots".

A highly significant finding was the interaction between justification and exposure such that subjects with low justification showed a decrease in estimated probability of quit-

ting smoking with greater commitment to exposure, while subjects with high justification showed an increase in estimated probability of quitting smoking with greater commitment to exposure. This was not consistent with expectations. In interpreting this finding it must be remembered that although all subjects saw the title of the critical article, not all subjects ranked it first in order of preference. However, since there was no significant difference between the mean preference ranks and also no significant correlations between preference ranks and probability estimate changes (see Appendix E), it may be assumed that preference ranks have no bearing on the interpretation of the interaction between exposure and levels of justification.

Any interpretation of the interaction in terms of only one mode of dissonance reduction, increase in probability of quitting smoking, would be inadequate since the group which was expected to experience most dissonance (low justification, high exposure) behaved quite similarly to the group which was expected to experience least dissonance (high justification, low exposure). A tentative interpretation can be made with the assistance of two considerations: (1) the preliminary questionnaire had different effects on the estimate of probability of quitting smoking for the subjects in the two levels of justification; (2) the subjects in the two levels of justification employed different modes of dissonance reduction in the experimental situation.

The subjects in the two levels of justification may

have been affected differently in their first estimate of the probability of quitting smoking because of the salience of smoking perceived in the questionnaire. In order to reduce dissonance aroused by the salience of smoking, the high justification subjects may have increased their estimates of the probability of quitting smoking. In the experimental situation where smoking may not have been as salient, they decreased their probability estimates except in the high exposure conditions where they increased their probability estimates due to high dissonance. On the other hand, the low justification subjects may not have been affected by the salience of smoking in the initial questionnaire and therefore their probability estimates remained fairly constant over the two settings, except in the high exposure conditions. Here they may have strengthened their positions by decreasing their probability estimates. That is, they "boomeranged" (Brehm and Cohen, 1962, pp. 54-59).

As corollaries to the revision of the avoidance postulate, Brock (1965) had proposed two other hypotheses. In order to obtain information relevant to these hypotheses, correlations were computed. These correlations are contained in Appendix E. The hypotheses were (1) for high justification subjects, the gratification of dissonance reduction is proportional to the magnitude of dissonance arousal; and (2) for high justification subjects receptivity to dissonant information is proportional to the magnitude of the anticipated discrepancy between an individual's own opinion and that presented by the discrepant article.

Brock's first hypothesis, proposed as a reason for seeking out discrepant information, is related to the positive

affect associated with dissonance reduction. If the major hypotheses of this study were supported, most enjoyment or gratification would have been expected to have been experienced by the high justification, high exposure subjects, and least enjoyment or gratification by the low justification, high exposure subjects. Since the major hypotheses were not supported, and since it is not clear whether the high justification subjects were actually "justified", analysis was completed for all subjects. The mean enjoyment rating of the critical article for each of the experimental groups is given in Appendix F. Low values indicate low enjoyment.

Analysis of variance revealed no significant differences in enjoyment ratings. (A summary of the analysis of variance is in Appendix G). However, the effects of the commitment to exposure manipulation on preference ranks (Table II) indicate that it was the high exposure subjects who tended to prefer the discrepant article. And the correlations (ranging from -0.267 to -0.567) indicated that persons who ranked the discrepant article highly tended to expect more enjoyment from reading this article than did persons who ranked the discrepant article lowly. Although it may be said that individuals would reasonably enjoy an article which they preferred more than would individuals who did not prefer to read it the correlations do offer weak support for the gratification hypothesis.

Brock's second hypothesis was that when justification is high, receptivity to dissonant information is proportional to the magnitude of anticipated discrepancy. Since it is not

clear which subjects were justified and which were not, the entire subject pool was considered. Support for this hypothesis would have been evidenced in high correlations between ratings of the difference in opinion (between the subjects' own opinion and that of the article) and the preference rankings given the discrepant article. This correlation ($r = -0.654$) was significant in only the low justification, high exposure condition. However, this group ($N = 15$) was expected to experience the most dissonance and to avoid the discrepant article most. The mean preference rank for this experimental group was 5.267, the second lowest of the four groups.

In addition to the correlations previously mentioned, other correlations were computed in order to determine if there were any meaningful relationships in the data. These correlations, including those previously mentioned are reported in Appendix E. One of these correlations provides some additional information on the preliminary questionnaire. It has been stated that perhaps the scores on the preliminary questionnaire were not a valid measure of justification for smoking behavior. In the questionnaire each subject was asked to decide which of a number of reasons for smoking were his. He was then to circle the relevant numbers to indicate the importance of these reasons. The scores were obtained by summing these importance numbers, a method which may have resulted in spuriously high scores. However the correlation between total number of reasons and the scores was highly significant. And the relationships between the total number of reasons and any other variable corresponded

to similar but more significant relationships between the other variable and the subjects' questionnaire scores. In other words, a measure of justification based on the absolute number of reasons for smoking would not have been as effective as the measure originally used.

Conclusions and Suggestions for Future Research

Although the main hypothesis of this study was not supported by the results, some tentative conclusions can be made. The original avoidance postulate made by Festinger (1957) has again failed to receive support. It seems that the circumstances under which an individual will avoid information for the sake of not increasing his level of dissonance are very few indeed. This study, as have a number of others (Freedman and Sears, 1965a) found no significant difference in avoidance of discrepant information between high and low dissonance subjects, although the tendency, which approached significance, was for high dissonance (commitment to exposure) subjects to prefer the information more so than low dissonance subjects.

The primary goal of this research was not to test the avoidance postulate, but to test a revision of it. As this was the first test of a new hypothesis it should not be rejected on present evidence. Further tests should be made of the hypothesis that avoidance of dissonance increasing information depends on the number and importance of consonant cognitions.

A recent study (Mills, 1965) offers a new approach to studies of selective exposure. Mills felt that the reason for the many failures of the avoidance postulate is that in order to show that dissonant information is avoided, one must compare exposure to information which is dissonant with exposure to information which is neutral, that is, neither consonant nor dissonant. Mills requested college women to

rank different products according to desirability, make a choice between two, and then rate their interest in reading advertisements for each of the products. When the ratings of interest for the chosen and rejected products were adjusted to eliminate differences due to their initial desirability, interest in advertisements for the chosen was positive; and interest for the rejected was negative, that is, less than would be expected from the desirability of the product.

In spite of Mills (1965) findings, the avoidance postulate is still in question and possibly the justification revision should be considered. Some suggestions for further tests of the hypothesis are in order. In the first stages of the research reported in this paper, when the hypotheses were being operationalized, consideration was given to the question of how to measure number and importance of prior cognitions. The method used was chosen, aside from practical considerations, because it was suspected that some individuals may have relevant cognitions which are not immediately available upon testing. These cognitions, however, may be present in the experimental situation. For this reason the check list questionnaire was used. On the other hand, one could easily argue that cognitions not available in pretesting may very likely not be available in the experimental situation when they are required to reduce dissonance. Perhaps then, a better pretest might have been an open end type of questionnaire.

Three previous studies (Brock, 1965; Feather, 1962, 1963) had used preference ranking of a magazine article concerning smoking. Since this study resulted from hypotheses

made by Brock (1965), it seemed reasonable to continue with this method. It seems now that neither preference ranking of magazine article titles, nor smoking are good variables for research into this area. Perhaps research in the area of cancer and smoking is in the vogue, but it can lead to difficulties previously mentioned. That is, in the pre-testing it seems reasonable to assume that many subjects experienced dissonance in just thinking about smoking - probably due to its recently publicized link with lung cancer. Although not indicated in preliminary work, another difficulty with the smoking variable is that of sex differences. It is likely that males and females often smoke for different reasons, quit smoking for different reasons, and therefore have different cognitions about smoking. Future studies, if they are to use the smoking variable, should take consideration of these sex differences. One advantage of the smoking variable appears to be the ease of operationalizing commitment to smoking behavior. This is simply the number of cigarettes smoked per day. In this study the sample was limited to moderate and heavy smokers by excluding anyone who smoked less than ten cigarettes per day. A more complete study would have included separate groups of light, moderate, and heavy smokers. Another difficulty mentioned was the ranking of magazine article titles as a measure of avoidance. Any differential interest in the non-critical articles had to be assumed to be random, but this may not have been the case and may have introduced unaccountable variance.

In general there is a problem in using paper and pencil indices as they tap only one facet of a behavior. Also data

obtained through the use of unvalidated questionnaires can be difficult to interpret. Although it is sometimes necessary to use these types of selection devices, whenever possible experimentally manipulable variables are preferred.

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Appendix A

SMOKING SURVEY

INSTRUCTIONS - Below is a list of reasons for smoking. If you smoke ten or more cigarettes a day, on the average, please answer the questions in the following way: after reading a statement decide whether or not it is one of the reasons that you smoke and circle YES or NO. If you circled yes, then circle a number on the scale to indicate the importance of the reason to you. That is, indicate if the reason is one of the main reasons that you smoke.

Example:

I smoke because I like the shape of the packages.

		UNIMPORTANT				IMPORTANT
NO	(YES)	1	2	3	4	(5)

This person checked YES and felt the reason was very important If he felt the reason was of lesser importance he would have checked a lower number.

NAME_____

I SMOKE BECAUSE:-

1. Smoking helps me to relax when I'm tense.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

2. Smoking helps me control my appetite and keeps my weight down.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

3. Smoking gives me something to do with my hands.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

4. All my friends smoke.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

5. Smoking helps me to concentrate.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

6. Smoking helps me feel at ease when I'm with strangers.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

7. Smoking is enjoyable.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

8. Smoking a cigarette makes me feel mature.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

9. Quitting smoking would be too unpleasant.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

10. A cigarette tastes good after a meal.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

11. A cigarette tastes good with coffee.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

12. Smoking helps me to study.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

13. My girlfriend (boyfriend if you are a girl) smokes.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

14. Smokers have more status than non-smokers in some groups.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

15. A cigarette makes me feel sure of myself.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

16. A cigarette perks me up when I feel drowsy.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

17. I like the smell of smoke.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

18. I like the taste of smoke.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

19. Smoking makes me feel independent

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

20. Smoking keeps me from feeling bored.

NO YES UNIMPORTANT 1 2 3 4 5 IMPORTANT

21. Smoking makes me feel warm when I'm cold.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

22. Smoking makes me feel cool when I'm hot.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

23. Smoking permits me to do nothing gracefully.

		UNIMPORTANT				IMPORTANT
NO	YES	1	2	3	4	5

On the average, how many cigarettes do you smoke and inhale each day? _____

Do you smoke filters or plain end? _____

What is the probability that you will quit smoking in the next ten years? (Indicate by a number from 0% to 100%. For example 50% would be that there is a 50-50 chance that you will quit, 100% would be that you absolutely will quit).

PROBABILITY OF QUITTING SMOKING = _____%

Appendix B

_____ Where Are Tomorrow's Leaders?

_____ Condition Critical - Cause Unknown.

_____ The Case for a Bilingual Canada

_____ The Joy of Children.

_____ The Smoking Habit - Why We Should Quit.

_____ The Secret of Keeping Your Teeth.

_____ Something New in Birth Control.

_____ Billy Graham's Program for Physical Fitness.

_____ How to Be a Millionaire by 40.

_____ Those Mysterious Air Crashes.

_____ The Boom in Real Estate.

Appendix C

OPINION QUESTIONNAIRE

INSTRUCTIONS

This questionnaire will help us find out people's opinions about various things. Each item in the questionnaire will describe something which you might do. We want your opinion as to how likely each event is. All of the items in the test will be of a form in which you estimate the number of chances out of 100 that a specific event occurs. Thus if you judge an event to be very likely you'd write a number close to 100; if you judge an event to be very unlikely, you'd write a number close to 0; and if you judge an event to be about equally likely and unlikely, you'd write a number close to 50.

PLEASE DO NOT SKIP ANY QUESTIONS

1. The chances that you will be involved in some level of government in the next twenty years are about _____ in 100.
2. The chances that you will spend some time in a hospital as a patient in the next ten years are about _____ in 100.
3. The chances that you will learn to speak French (or another language if you already speak French) in the next fifteen years are about _____ in 100.
4. The chances that you will be a parent (or have another child if you are already a parent) in the next ten years are about _____ in 100.
5. The chances that you will quit smoking (or start smoking if you are a non-smoker) are about _____ in 100.
6. The chances that you will have to wear false teeth in the next thirty years are about _____ in 100.
7. The chances that you will use some type of birth control device in the next ten years are about _____ in 100.
8. The chances that you will be thirty or more pounds overweight in the next ten years are about _____ in 100.

9. The chances that you will have an income of over $10,000. in the next ten years are about _____ in 100.
10. The chances that you will fly in a jet passenger airplane in the next ten years are about _____ in 100.
11. The chances that you will purchase a house in the next ten years are about _____ in 100.

Appendix D

If you were to read the article entitled:

The Smoking Habit - Why We Should Quit

1. How much would you enjoy reading the article? (Circle a number)

Not enjoy at all — Enjoy very much

1 2 3 4 5

2. How different do you think the article would be from your opinion about smoking?

The same — Very different

1 2 3 4 5

APPENDIX E

Means and Intercorrelations of Variables

Legend for Variables Included in This Analysis

Variable No.	Description
1	Scores on "Smoking Survey" - low values = low justification.
2	Preference rank given critical article - low values = high preference.
3	Change in estimate of probability of quitting smoking - negative values = increases in probability.
4	Expected enjoyment in reading critical article - low value = low enjoyment.
5	Expected difference in opinion between self and critical article - low value = low expected difference.
6	Number of cigarettes smoked per day.
7	Number of reasons for smoking.

Table I

Means and Intercorrelations of Variables for the Total Sample

Means

1	2	3	4	5	6	7
32.267	5.777	4.400	3.150	2.433	18.617	10.400

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	-0.001	1.000					
3	-0.039	0.082	1.000				
4	-0.138	-0.267*	0.066	1.000			
5	0.098	0.077	0.066	0.002	1.000		
6	0.303*	-0.074	-0.215	-0.248*	-0.023	1.000	
7	0.851*	-0.074	-0.012	-0.069	0.003	0.198	1.000

n = 60 df = 58 * $p < .05$ when $r \geq \pm 0.255$

Table II

Means and Intercorrelations of Variables Under Low Justification, Low Exposure Conditions

Means

1	2	3	4	5	6	7
20.061	6.133	-3.667	3.133	2.533	17.933	7.600

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	-0.076	1.000					
3	0.316	-0.254	1.000				
4	-0.094	0.036	-0.060	1.000			
5	-0.181	-0.001	0.045	-0.274	1.000		
6	0.464	-0.023	0.004	0.422	-0.277	1.000	
7	0.596*	-0.374	0.236	0.049	-0.397	0.296	1.000

n = 15 df = 13 *$p < .05$ when $r \geq \pm 0.514$

Table III

Means and Intercorrelations of Variables Under Low Justification, High Exposure Conditions

Means

1	2	3	4	5	6	7
21.000	5.267	14.000	3.467	2.200	16.333	8.267

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	0.066	1.000					
3	-0.162	0.299	1.000				
4	0.528*	-0.567*	-0.443	1.000			
5	-0.026	-0.654*	0.043	0.491	1.000		
6	0.019	-0.327	-0.265	0.271	0.467	1.000	
7.	0.158	0.257	0.252	0.045	0.070	0.080	1.000

n = 15 df = 13 *$p < .05$ when $r \geq \pm 0.514$

Table IV

Means and Intercorrelations of Variables Under High Justification, Low Exposure Conditions

Means

1	2	3	4	5	6	7
44.000	6.533	12.667	3.067	2.533	17.733	13.1333

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	-0.142	1.000					
3	0.054	-0.139	1.000				
4	-0.051	-0.176	0.177	1.000			
5	0.193	0.457	0.056	-0.299	1.000		
6	-0.006	-0.141	0.207	-0.750*	0.213	1.000	
7	0.677*	-0.050	-0.295	0.207	0.024	-0.219	1.000

N = 15 df = 13 *$p < .05$ when $r \geq \pm 0.514$

Table V

Means and Intercorrelations of Variables Under High Justifiication, High Exposure Conditions

Means

1	2	3	4	5	6	7
43.933	4.867	-5.933	2.933	2.467	22.467	12.600

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	0.108	1.000					
3	-0.167	0.108	1.000				
4	-0.192	-0.235	0.373	1.000			
5	0.372	0.259	0.309	0.221	1.000		
6	0.272	0.266	-0.187	-0.436	-0.222	1.000	
7	0.687*	-0.444	-0.282	-0.043	0.181	0.076	1.000

N = 15 df = 13 *$p < .05$ when $r \geq \pm 0.514$

Table VI

Means and Intercorrelations of Variables for Low Justification Subjects Under High Exposure and Low Exposure Conditions

Means

1	2	3	4	5	6	7
20.533	5.7000	5.367	3.300	2.367	17.133	7.933

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	-0.021	1.000					
3	0.112	0.009	1.000				
4	0.255	-0.389*	-0.184	1.000			
5	-0.147	-0.214	-0.040	0.029	1.000		
6	0.243	-0.161	-0.200	0.279	0.011	1.000	
7	0.410*	-0.046	0.296	0.081	-0.249	0.155	1.000

n = 30 df = 28 *$p < .05$ when $r \geq \pm 0.361$

Table VII

Means and Intercorrelations of Variables for High Justification Subjects Under High Exposure and Low Exposure Conditions

Means

1	2	3	4	5	6	7
44.000	5.7000	3.367	3.000	2.500	20.100	12.867

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	0.011	1.000					
3	-0.051	0.165	1.000				
4	-0.136	-0.177	0.272	1.000			
5	0.298	0.337	0.173	0.001	1.000		
6	0.166	-0.012	-0.221	-0.519*	-0.074	1.000	
7	0.659*	-0.180	-0.178	0.089	0.054	-0.088	1.000

n = 30 df = 28 *$p < .05$ when $r \geq \pm 0.361$

Table VIII

Means and Intercorrelations of Variables for Low Exposure Conditions - High and Low Justification Subjects

Means

1	2	3	4	5	6	7
32.067	6.333	4.700	3.100	2.533	17.833	10.367

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	0.046	1.000					
3	0.495*	-0.132	1.000				
4	-0.063	-0.094	0.052	1.000			
5	-0.004	0.217	0.044	-.0279	1.000		
6	0.070	-0.081	0.078	-0.241	-0.058	1.000	
7	0.879*	-0.041	0.334	0.060	-0.099	-0.008	1.000

n = 30 df = 28 *$p < .05$ when $r \geq \pm 0.361$

Table IX

Means and Intercorrelations of Variables for High Exposure Conditions - High and Low Justification Subjects

Means

1	2	3	4	5	6	7
32.261	5.067	4.033	3.200	2.333	19.400	10.433

Correlations

	1	2	3	4	5	6	7
1	1.000						
2	-0.034	1.000					
3	-0.515*	0.228	1.000				
4	-0.201	-0.363*	0.077	1.000			
5	0.226	-0.094	0.086	0.254	1.000		
6	0.477*	-0.024	-0.386*	-0.266	0.025	1.000	
7	0.822*	-0.109	-0.376*	-0.191	0.152	0.384*	1.000

N = 30 df = 28 *$p < .05$ when $r \geq \pm 0.361$

Appendix F

Mean Enjoyment Rating of Critical Article

	low exposure	high exposure
Low justification	3.133	3.467
High justification	3.067	2.933

Appendix G

Summary of Analysis of Variance of Enjoyment Ratings of Critical Article

Source of Variance	Sum of Squares	df	Mean Square	F	p
High vs. low justification (A)	1.35	1	1.35	1.47	-
High vs. low exposure (B)	0.15	1	0.15	-	-
A x B	0.82	1	0.82	-	-
Error	51.33	56	0.92		